

# PELVIC INCLINATION / Pelvic tilt

Date 12/6/21  
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1. **Pelvis** - Greek word ; Basin . -- bowl  
Formed by - Ilium, Pubis, Ischium,  
Sacrum & coccyx.

Tilt - Slope, incline, lean, bend.

2. **Pelvic Tilt** - pelvic tilt is an anteroposterior motion of the pelvis around an imaginary axis in the frontal plane.

→ pelvic tilt is the orientation of the pelvis in respect to the femurs it rests upon.

→ It may be inclined or tilt in an anterior, posterior, lateral direction or rotated.

→ any deviation in the inclination of pelvis is called pelvic tilt.

→ Muscles involved in pelvic tilting :-

- 1) abdominals -
  1. Rectus abdominus - extensor of spine.
  2. External oblique - flexors of hip.
  3. Internal oblique - iliopsoas.
  4. Transverse abdominus

2. Hip abductors -
  - 1) gluteus medius.
  - 2) gluteus minimus
- 3) lumbar side flexors -
  - 1) quadratus lumborum

- 4) Extensor of hip -
  - 1) gluteus maximus.



1. Anterior / forward tilting :-  
Rotation of pelvis in the sagittal plane about a frontal horizontal axis in such a way that the Symphysis pubis turns downward & posterior surface of sacrum turns upward.

→ This particular movement produced by hip flexor & spine lumbar extensor.

2. Posterior pelvic tilt -

→ Rotation of pelvis in the sagittal plane about frontal horizontal axis on the femoral heads in such a way that Symphysis pubis turns upward & post. surface of sacrum turns downward.

→ This movement is produced by hip extensor & straight abdominal muscle.

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3. Lateral tilting :- tilting of pelvis in frontal plane about the sagittal axis over one of the femoral head in such a way that one iliac crest is lowered & the other one is raised.

\* How to measure pelvic tilt :-

It can be measured by 2 ways -

1. It could be measured by drawing imaginary line through Symphysis pubis & lumbosacral angle, which lies in relation to the horizontal line can be measured.

2. Pelvic tilt is said to be normal if this angle lies b/w 50 & 60 degree.



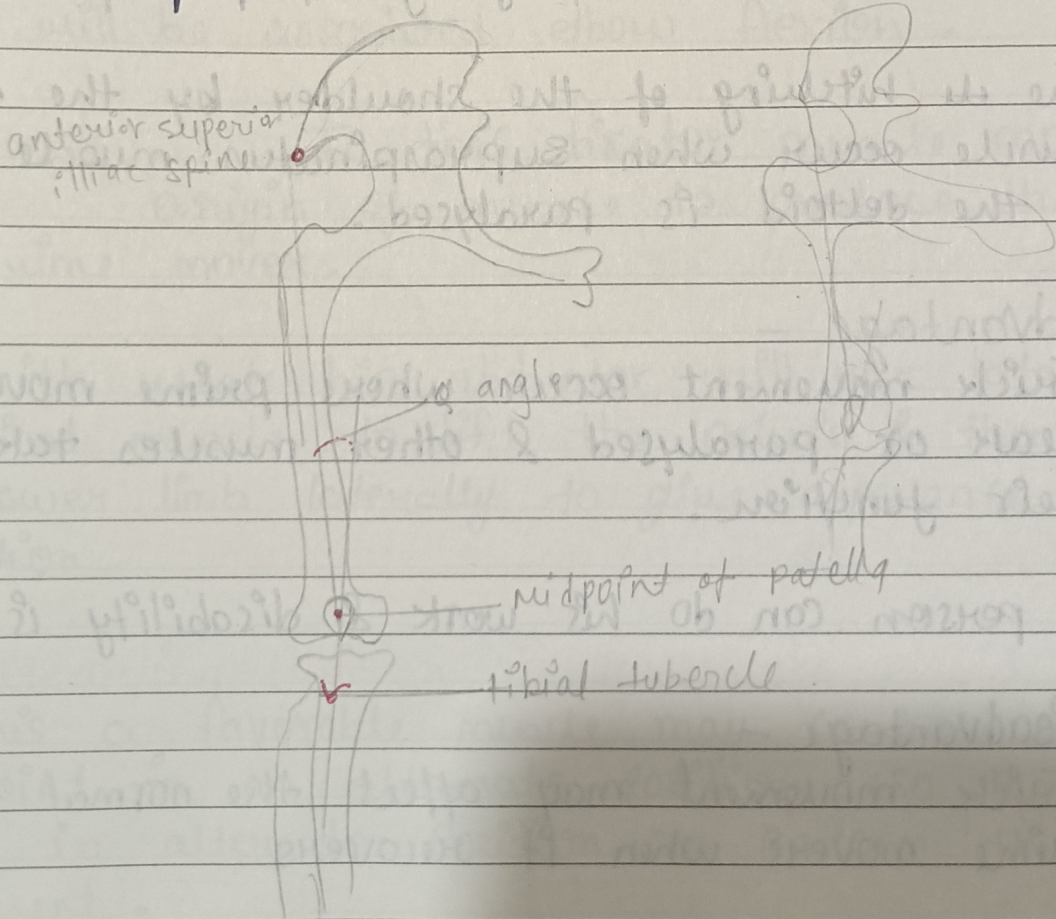
\* Pelvic tilt measurement -

i) pelvic inclinometer - In this particular method one arm of the meter is placed on Symphysis pubis & the other is placed over post. sup. iliac spine.

→ Pelvic tilt is normal if this lies over  $30^\circ$ .

\* Q angle which is also known as quadriceps angle, is defined as the angle formed b/w the quadriceps muscles & the patella tendon.

\* Moreover Q angle has become accepted as an important factor in assessing knee joint function & determining knee health in individuals suffering from an ant. knee pain (2-4).





agent's primary  
antagonist opp. work  
energy - prime movement in work

- 1) Quadriceps 'Q' angle -  
- angle b/w line of application of quadriceps force  
& direction of patellar tendon in coronal plane.
- Normal males -  $10 - 12^\circ$   
female -  $15 - 18^\circ$   
- greater pelvic width.  
- short femoral length.
- normal -  $< 15^\circ$   
more than  $20^\circ$  - Knock-kneed [genu valgum]  
less than  $10^\circ$  - Bow-legged [genu varum]